DOCUMENT RESUME

ED 180 826 SE 029 698

AUTHOR Jedlicka, Ella, Ed.
TITLE Energy Conservation Teaching Activities for Home Economics Classrooms.
INSTITUTION University of Northern Iowa, Cedar Falls. Dept. of Home Economics Education.
SPONS AGENCY Department of Energy, Washington, D.C.
PUB DATE Jun 79
NOTE 58p.

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Class Activities; Consumer Education; Curriculum; *Energy; *Energy Conservation; Fuel Consumption; Fuels; *Home Economics; Home Economics Education; Home Management; Interdisciplinary Approach; Natural Resources; Nonformal Education; Recycling; Solar Radiation; Waste Disposal
IDENTIFIERS *Energy Education

ABSTRACT

This collection of home economics activities is intended to meet the special needs of home economics teachers who wish to include energy education activities in their curricula. The 45 activities can be used as presented, or can be modified to individual needs or local conditions. Each activity includes: (1) title, (2) objective, (3) activity description, (4) variations or extensions, and (5) resources. Additionally, each activity delineates appropriate grade levels, sets out the skills to be stressed, and lists the concepts taught during the activity. (Author/RE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED180826

ENERGY CONSERVATION TEACHING ACTIVITIES

for

Home Economics Classrooms

developed

by
Participants of
The Home Economics Energy Workshop
(A summer faculty development project)
June 1979

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Ella Jedlicka

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Funded by:
United States Department of Energy
Summer Faculty Development Project
Workshop Site: Department of Home Economics
University of Northern Iowa

Project Director: Ella Jedlicka

SE 029 698

Participants of The Home Economics Energy Workshop, June 1979

1. Baker, Gwen
   Oskaloosa, Iowa 52577

2. Barker, Joan
   Burlington, Iowa 52601

3. Davidson, Jeanine M.
   Cedar Falls, Iowa 50613

4. Doermann, Margaret
   Anamosa, Iowa 52205

5. Funk, Maureen C.
   Muscatine, Iowa 52761

6. Goodburn, Cindra
   LeMars, Iowa 51031

7. Gordon, Mrs. Carol
   Grundy Center, Iowa 50638

8. Harada, Mrs. Carolyn
   Fredericksburg, Iowa 50630

9. Hill, Nancy
   Curlew, Iowa 50527

10. Klatt, Martha
    Perry, Iowa 50220

11. Plunkett, Marilyn A.
    Ida Grove, Iowa 51445

12. Ryan, Martha J.
    Brooklyn, Iowa 52211

FACILITATOR/PARTICIPANTS

1. Colvin, Miriam
   Hawkeye, Iowa 52142

2. Mundy, Patricia
   Perry, Iowa 50220

Introduction

As energy demands and costs soar, the need for conservation education activities has become increasingly urgent. Home Economics curricula, which includes topic areas such as home management, consumerism, money management, valuing, decision making and human behavior, is a logical place to incorporate energy conservation education and relate it meaningfully to daily living patterns.

Existing activity packets which have, however, typically addressed science or social studies teachers are frequently inappropriate or unadaptable to the multifaceted subject areas of home economics. This packet is intended to meet the special needs of home economics teachers wishing to include new activities in their curricula. The fourty-five completed activities can be used as they appear or can be adapted by individuals for local conditions. In some cases variations are suggested. A list of partially developed possible activities is included as is a brief list of jingles, slogans and bulletin board themes. It is hoped that these suggestions will prompt individuals to complete their own activities. An energy poll suited for administration to students or faculty is also included. Some adaptation may be required for urban areas. Workshop participants using the poll have reported interesting response differences between students and school staff.

Rather than isolate conservation education as a seperate energy unit, it is recommended that activities be included in logical places in an existing curricula to reenforce the point that conservation is integrated with multiple aspects of life and cannot be relegated to any single time or situation.

Ella Jedlicka
project director and editor

TABLE OF CONTENTS

	Page
Observing Energy Use and Abuse	1
Energy Posters	2
Trade-offs Between Rate of Consumption and Price Variables	3
Car pooling.	4
Survey on Energy Habits.	5
Energy Savers or Misbehavers (Small Applicances)	6
Are You Sold?.	7
The "Good Ole Days"?	8
Selecting Efficient Appliances	9
Babies Cost Bundles.	10
1 lb of Coal = ?	11
Waste in Packaging	12
Introduction to Energy Efficiency.	13
Utility Costs.	14
Thermostat Settings.	15
Shop and Compare	16
You Light Up My Life	17
"Will There Be Enough?".	18
Homes in Domes	19
Energy! What am I?.	20
Slick Tricks to Conserve Energy.	21
Laundry Logic.	22
Passive and Active Solar Energy Use.	23
Where You Are Put - Protects Energy.	24
So.....What? (Solar Energy Introduction)	25

TABLE OF CONTENTS

	Page
Possibilities of Passive Solar Home Heating	26
Use of Solar Energy in New Developments	27
A Mini Drum Wall	28
Under the Shade of the Old Maple Tree	29
The House of 2001	30
Alternatives to the "Box"	31
Energy Fair	32
Is This House Energy Efficient?	33
Catching the Rays	34
"Is It Fair?"	35
Checking Efficiency of Older Appliances	36
Memory Pillow for Mom (Xmas or Mother's Day)	37
What's New? Survey of New Technology in Energy	38
You Can Fight City Hall	39
Kids and Kilowatts	40
Any One You Know?	41
Any One You Know? (Script)	42
Heat Pumps	43
Food Energy	44
Draft Dodger	45
List of Activities for Further Development	46
Iowa Home Economics Teachers Energy Poll	50
Energy Jingles, Slogans, Bulletin Board Ideas	52

Title: Observing Energy Use and Abuse

Objective: After observing others, the student will list 10 activities or habits that the student has observed today that were poor examples of energy use.

Grade Level

Adaptable to all age groups

Activity:

1. Students will list personal observations of what they believe to be energy misuse.
2. Students will compile lists of energy use and misuse, observed and categorize the lists into home, school, community, and transportation sections.
3. Students will be divided into 4 groups and assigned one of the above topics. Each group will formulate its own generalizations and recommendations for saving energy.
4. At the conclusion of the activity a general discussion will take place in class with each group reporting its findings.

Skills

Observing
Reasoning
Communication
Problem solving

Variations or Extensions:

1. Make a checklist and have students stationed ar various locations to observe behavior of others. (Supermarket, Study Hall, Teachers Lounge)
2. Make a checklist and have students take it home to complete.
3. Write to a Scholastic Magazine or local publication and ask them to publicize the check list or student findings.

Resources: Observation

Curriculum Guide

"The Household Energy Game" - The University of Wisconsin
Sea Grant College program
1800 University Avenue
Madison, Wisconsin 53706

No charge for single copies.

Concepts

Habit modification
Energy Misuse

Title: Energy Posters

Objective: Students will interpret and demonstrate energy conservation methods.

Grade Level

All grade levels

Activity:

1. Teacher gives students specific ways of conserving energy.
2. Students evaluate desirability of each method.
3. Given assignment: They are national advertising agencies. Look through magazines at advertising ideas.

   Make posters using techniques found in magazines.

   Students evaluate anonymous posters.

   Class discussion of energy conservation posters.

   Display posters throughout school hallways.

Skills

Gaining information
Communication
Participation
Valuing

Variations or Extensions:

1. Have students list 25 conservation practices.
2. Have students find energy conservation pictures in magazines and newspapers.
3. Hang posters in grocery stores, laundromats, and in mall areas.

Resources:

Magazines
Pamphlets
Bibliography sources

Concepts

Everyone must conserve
Individual values determine conservation measures adapted.
People need to be educated and reminded of energy conservation techniques.

Title: Trade-offs Between Rate of Consumption and Price Variables

Objective:
1. The student will define with accuracy the meaning of trade-offs, rate of consumption and price variable.
2. The student will identify trade-offs made in the past and select trade-offs to possibly be made in the future.

Activities:
1. Presentation of information explaining trade-offs between rate of consumption and price variables. (Also supply and demand interrelation) Give examples-individual factors which could affect this relationship - trucker's strike, tax subsidies, tariffs, import quotas, price supports.
2. Large discussion or small group work listing trade-offs they have made - case studies, job vs. time with friends vs. money vs. car payments.
3. Energy Auction - set minimum price for each item - air conditioner, range, refrigerator, car, etc. and set amount of money - bid. Also - use as budgeting game and extend over 2-3 months figuring costs of energy 1 month for each item.

Variations or Extensions:
1. Case Studies
2. Valuings situations:
Would you be willing to - ban rock concerts because of noise, - ration gas so pleasure vehicles couldn't be used?

Resources:
Annual report DOE

Students own experiences - case studies

Guest speaker - economist

Grade Level

10 to 12
Adult Education

Skills

Gain information
Critical Thinking
Valuing
Problem solving
Communication
Participation

Concepts

Trade-offs
Rate of consumption
Availability of energy, labor, national resources, capital.
Law of supply and demand.

Title: Car pooling

Objectives: The student will compare the cost and time involved in both driving alone to school and car pooling.

Activity: The student will keep a written record of the gasoline, energy, and time spent in driving alone to school vs. time and cost for car pooling for 1 week.

Variations or Extensions:

1. Legal implications could be studied such as insurance.
2. Figure the cost of paying to park at the school.
3. Figure the cost at 15¢ per mile vs actual cost of gasoline and insurance, oil, etc.
4. Comparison of regular (V8-6) vs compact and mini-compact and number of persons carried.
5. Could also be applied with bussing.

Resources:

Insurance Agent

Car Dealer

Public Transportation Agencies

School Transportation Officials

Grade Level

High School
Age (16 up)

Skills

Recording
Cooperation
Reevaluate
Problem solving
Gaining information
Communication
Evaluating
Participation

Concepts

Awareness of transportation budgeting alternatives.
Living skills.

Title: Survey on Energy Habits

Objective: Students will survey 10 people on their view of energy consumption.

Activity:

1. Oral quiz on student's current energy use.
2. Presentation of information showing importance of energy conservation (statistics, poster, etc.).
3. Students discuss survey procedures. (Teacher prepared survey concerning use of car, habits in home, etc.)
4. Tabulation of results and analysis of findings.

Variations or Extensions:

1. Interview only parents or teachers or some other specific group.
2. Questions asked on survey could be changed.
3. A before and after classroom quiz (pretest/post-test).

Resources: Resources in Bibliography

If possible, appropriate AV materials

Survey

Grade Level

Middle School and up.

Skills

Gaining information
Valuing
Communication
Participation

Concepts

Importance of energy conservation.
Things we value in U.S. consume much energy.
Everyone must conserve.
Conservation measures taken by an individual depend upon own value system.

Title: Energy Savers or Misbehavers (Small Appliances)

Objective: Students will compare the small appliances found in home, rating them according to use or uses, consumption of energy and importance of ownership.

Grade Level

High School

Activity:

1. List small appliances found in home.
2. Categorize appliances according to specific use.
3. Calculate how long and how often each appliance is used.
4. Compare operating wattage of appliances in each specific use area.
5. Rate appliance in each area according to personal importance. (Such as a scale of 1-5, etc.)

Variations or Extensions:

1. Further calculate cost of appliance use.
2. Invite person from a utility company to speak on energy use in the home related to appliances.
3. Evaluate an ad on TV or in a magazine for a small appliance.
4. Individual or group demonstrations on appliance selection and use.

Skills

Investigate information given on appliances.

Resources: Extension Specialist

County Extension Home Economist

Utility Personnel

Association of Home Appliance Manufacturers
20 North Wacker Drive
Chicago, Illinois 50506

Concepts

Wattage and cost are factors in selection.

Title: Are You Sold?

Objective: Following this activity students will be better able to inform the American Public of the current energy situation and the future implications.

Grade Level

7 - 12

Activity:

1. Research current energy situation using all available sources.
2. Formulate a minute commercial selling the American Public on the energy shortage and possible solutions.
3. Video tape commercials. Show to another group or take to TV station to possibly be shown.

Variations or Extensions:

1. Envision what the 1st home of your son/daughter will be like.
2. Prepare display or poster. Have contest.
3. Radio time slots.

Skills

Communication
Research

Resources: Other commercials

Speech and/or art department

Concepts

Social Attitudes
New Ideas

Title: The "Good Ole Days"?

Objective: Following this learning experience students will be better able to compare the types of energy and utensils used for household tasks in grandmothers first home and a home today.

Grade Level

7 - 12

Activity:

1. Identify and match new utensils to those used by grandmother. Compare energy used.

2. Assign specific reports in the following areas.
   Stoves and home heating
   Food preservation
   Laundry
   Serving
   Cleaning
   Entertainment

3. Trip to museum or Living History Farm to obtain information for reports.

4. Students do oral reports to class using visual aids emphasizing energy usage.

5. Evaluation - Each student will write a paragraph - identify how the "Human Energy" saving devices have changed our lifestyle.

Skills

Observation
Listening
Writing
Research
Communication

Variations or Extensions:

1. Comparing the Hopechest of your grandmother to that of today's bride.

2. Class use of utensils (making butter, coleslaw, drying food. etc.).

3. Prepare old recipes.

4. Forum: Various energy lifestyles.

5. Think of energy tips for the day.

Concepts

Energy awareness

Resources: Grandmother or Senior Citizens

Old sewing books, cookbooks, instruction books, antique books

Museums

Antique collectors

Title: Selecting Efficient Appliances

Objective: The student will compare the new energy efficiency ratings on different appliances.

Activity: The student will compute the life cycle costs for at least 4 different appliances models (brands - basic and deluxe) and compare this information with other class members. (Posters for display and sharing)

Variations or Extensions: Use of meter to use on a classroom appliance - borrow meter from utility company.

Resources: American Home Appliances Manufacturers Association - Energy
20 N. Wacker Drive, Chicago, Illinois 50506

Data Sheet

Local utility firm

Merchant or catalogs

Various flyers through mail

Watt meter

Grade Level

High School or Adult Education

Skills

Collecting information
Communicate
Computation skills
Critical thinking

Concepts

Life cycle costs
Kwhr and KER's

Title: Babies Cost Bundles

Objective: The student will identify energy costs correlating to the addition of a baby to a family.

Grade Level

Senior High

Activity:

1. Considering the following: prenatal energy costs.
   a. Mother's intolerance to temperature changes.
   b. Additional car trips to doctor.
   c. Clothing (indirect)
2. Postnatal energy costs.
   a. Housing
   b. Utilities
   c. Food
   d. Clothing and maintenance
   e. Toys
   f. Transportation to doctor

Skills

Gaining information
Communication
Participation

Variations or Extensions: Calculate energy costs involved with the addition of a baby to the family. Calculate until child is 2 months, 6 months and/or 12 months old.

1. Family trips to hospital
2. Comparison of various lifestyles as related to energy costs
3. Panel of parents
4. Comparison of disposable and cloth diapers
5. Include energy related hospital costs

Concepts

Energy is a consideration in family planning.

Resources: Possibly a panel of parents.

Student and teacher past experiences.

Catalogs and stores.

Business administration, maternity hospital.

Title: 1 lb of Coal = ?

Objective: The students will be able to discribe specific activities that could be performed with the electrical energy available from 1 lb of coal.

Grade Level

9 - 12

Activity:

1. Present that 1 lb of coal = 1 KWH of electricity.

2. The student shall compute activities that can be done with 1 KWH -- compute 5 different electrical energy usages.

3. Extra credit - poll - how many miles drive to school each day - softball trips and energy used.

   Figure energy use for cars in parking lot (attendance) figuring average distance and mileage.

   How long would a KWH last in our homes? for Stereo? other favorite appliance?

Skills

Computation
Research
Discussion
Valuing
Critical thinking

Variations or

Compute how many KWH of electricity are necessary for night football baseball or basketball games and compute amount of coal needed and trade-off for that energy level.

Resources: Annual Report of Department of Energy

Utility Company

School System for Light

AHAM
20 North Wacker Drive
Chicago Illinois 60606

Concepts

Costs of energy in useage and money.
Trade-offs

Title: Waste in Packaging

Objective: Students will observe and identify excessive packaging found on purchased products

Activity:

1. Bring food item from home that is excessively packaged.
2. Display on table.
3. Students individually list as many packaging types as they can see.
4. Assign item brought to small group to decide on a less wasteful way to package the item.
5. Report to large group and discuss these better ways to reduce waste in packaging.

Variations or Extensions: Final activity could be to write General Mills or your legislator to let them know of your conclusions.

Resources: Grocery store

Supplies from home

Supply cupboard at school

Grade Level

All levels

Skills

Observation
Communication
Participation

Concepts

Waste in packaging

Title: Introduction to Energy Efficiency

Objective: Students will discover ways to make homes more energy efficient

Activity:

1. Presentation by resource person on ways to conserve energy in the home.
2. Go home and list five things students could do in own house to conserve energy.

Variations or Extensions:

1. Prepare an energy audit
2. Construct a display of energy saving gadgets that are currently appearing on the market.

Resources:

Heating and plumbing supply persons

Hardware Store

Contractor - architect - builders

Realtor

Utilities person

Grade Level

7 - 12

Skills

Listening
Observing
Writing

Concepts

Energy
Efficiency

Title: Utility Costs

Objective: Students will determine the cost of utilities for their homes for the previous month.

Activity:

1. Bring utility stubs or information from their own homes for the previous month.
2. Figure approximate square footage costs per day.
3. Figure costs per Kwh and cost per square foot in own home.
4. Compare findings.

Variations or Extensions:

1. Investigate costs of public buildings
2. Compare or investigate rates for commercial and residential buildings

Resources: Home records

Parents

Utility Company

Grade Level

10 - 12
Adult Education

Skills

Math
Communication

Concepts

Energy Awareness

Title: Thermostat Settings

Objective: Students will compare daytime and nighttime settings of home thermostats.

Activity:

1. Students as a group will formulate 5 questions to use as a survey.
2. Each student will poll their parents and 4 others using the questionaire they developed.
3. Students will report on and discuss findings.
4. Students will come to conclusions on energy usage in various homes.

Variations or Extensions: Students will compile findings and report to those surveyed or publish results in school or local paper.

Resources:

Parents

Friends

Utility Company

Grade Level

10 - 12
Adult Education

Skills

Writing
Communication

Concepts

Energy
Awareness

Title: Shop and Compare

Objective: Students will interpret descriptive information in catalogs selling similar household appliances.

Grade Level

9 - 12
Adult

Activity:

1. From provided catalogs (Sears, Penneys, Wards, Spiegels) students will find information. (UL, Wattage, Price, Size, etc.)

2. Students will record information on wall chart.

	S	P	W	Sp
UL				
Watt				
Price				
Size				
Finish				
Energy				
Saving				

Skills

Reading
Writing

3. Students will compare their findings with Consumer Magazines.

4. Appliances which are most energy efficient will be selected.

Variations or Extensions:

1. Do some activity with other appliance for extra credit.

2. Figure life cycle cost of appliances and compare energy efficient models with less efficient but cheaper models.

Resources: Catalogs

Consumer Magazines

Concepts

Energy Awareness

Title: You Light Up My Life

Objective: Students will investigate the size and variations of incandescent bulbs found in various areas of their homes.

Activity:

1. Students will check homes and record findings related to bulb usage.
2. Using candlepower chart students will determine areas where different light intensities are required.
3. Discuss various types of incandescent bulbs on the market.
4. Set up a display of various types available. Exhibit in showcase.

Variations or Extensions:

1. Determine if flourescent bulbs could be used in place of incandescent in any area.
2. See if any activity can be done without lights.
3. Discuss the practicality of leaving a light burning when gone.
4. Research the energy costs of lighting different public buildings such as school, church, stores, etc.

Resources: Candlepower Chart

Homes

Utility Company

Grade Level

9 - 12

Skills

Reading
Writing

Concepts

Energy Conservation

Title: "Will There Be Enough?"

Objective: Students will illustrate exponentially the limitations on our fossil fuels.

Activity: Using checker board place 1 grain of rice on the 1st of the 64 squares. Place 2_2 grains on the second square; $4(2^2)$ on the 3rd square; 8 (2^2) on the fourth; 16 (2^2) on the fifth square; etc. doubling the number each time. How many grains (grams or tons!!) should go on the 64^2 square? Do you have enough rice? (on the 64th not enough rice in world)

Variations or Extensions: Use water in a bottle

Resources: Checkerboard

Grain or rice

Calculator

Grade Level

9 - 12

Skills

Computation
Critical Thinking

Concepts

Finite source of energy

Title: Homes in Domes

Objective: Students will construct a model geodesic dome from designing stage through the decorating process.

Activity: Using a geodestic dome kit or tinker toys, students will frame-up a geodesic dome. Plans will be designed for placement of interior living centers. Samples of carpeting, paints, wall coverings, furnishings, etc., will be assembled and discussed by the students. A discussion will follow outlining problems faced during planning and construction.

Variations or Extensions:

1. A bulletin board display of building books or pictures of domes (photographs or magazine clippings)
2. Visit a geodesic dome or have a contractor visit your class.
3. Display the completed project at open house to make the public aware of alternative housing styles.
4. Compare heating bills of a geodesic dome home with a standard home of comparable square footage.
5. Discuss possible sites in your area suitable for a geodesic dome.
6. See if your town has building codes that would restrict geodesic domes.
7. Show people a picture of a geodesic dome and interview them about their impressions.

Resources: Geodesic Dome Kits ($2.75 - $12.00)
Available: The Big Outdoors, Inc.
2201 N.E. Kennedy Street
Minneapolis, Minnesota 55413

Back issues of Better Homes and Gardens and other magazines.

The Dome Plan Book ($6.00)
Available: The Big Outdoors, Inc.
2201 N.E. Kennedy Street
Minneapolis, Minnesota 55413

Cooper Construction Company, Cedar Falls, Iowa or other contractors building domes.

Home owner.

Grade Level

12th grade
housing
Junior College
Design Class
Adult Education

Skills

Critical Analysis
Hand - Eye Coordination
Participation
Background in Design

Concepts

Exploration of alternative housing styles
Sharpening of design skills

Title: ENERGY! What Am I?

Objective: Students will select an energy source and construct a riddle sheet to present to the class.

Activity: Available energy resources will be discussed by the class. Students will select one topic. On a folded piece of paper, they will draw an energy clue or make up a riddle. On the inside, they will include the answer. Each student will display their sealed riddle sheet on a bulletin board. On the basis of the clue, students will guess which energy source is being sought. Sheets will be opened and answers revealed.

Example:

Outside: I'm millions of years old
But that doesn't cramp my style.
I shine and shine, never run out
and you can use me all the while!
What am I?

Inside: Picture of sun

Variations or Extensions:

1. Teams could compete against each other for the most correct answers.
2. Twenty Questions could be played.
3. Pictures could be cut from magazines for clues.

Resources: Magazines

Newspapers

Government Bulletins

Pamphlets

Grade Level

7th Grade Foods
Elementary students

Skills

Problem Solving
Communication
Participation
Drawing and writing skills

Concepts

Identification of energy resources.

Title: Slick Tricks to Conserve Energy

Objective:

1. Student will identify 10 various ways to conserve energy.
2. Student will compare low energy life styles with the energy usage in the U.S. to date.

Activity:

1. Brainstorm ways to conserve energy.
2. Teacher supplement.
3. On a one-to-one basis, interview senior citizens on life styles they experienced before the energy affluent years of present.
4. Compile list of above plus recent savings efforts to live satisfactorily on a fixed income.
5. Compare energy use choices of senior citizens and choices of students.

Variations or Extensions: Research life styles and energy usage of peoples in countries other than in U.S.

Resources:

Senior Citizens

People from other countries

Exchange students

Utility Company handouts

Extension pamphlets

Grade Level

7 - 8th

Skills

Communications
Valuing
Critical thinking
Compiling
Comparing

Concepts

Energy can be conserved.
Fixed income citizens feel the energy crunch first and hardest.
Ours is not the only or necessarily the best life style.

Title: Laundry Logic

Objective: The student will be able to consider all factors involved in comparing the various methods of cleaning clothing and give reasons for their selection of the one which they consider to be most energy efficient for a given situation.

Grade Level

Senior High Clothing classes

Activity:

1. Brainstorm methods of cleaning clothing (dry-cleaning, hand washing and air drying, home washer and dryer, laundromat, etc.) and list these as titles on large sheets of paper on wall.
2. Divide each of these sheets into two columns and list advantages and disadvantages of each.
3. Using teacher-made worksheet (with some given such as formulas to follow and cost of electricity, water and transportation) figure how much it would cost to clean a given amount of laundry. (This will involve figuring costs of laundry products, etc.)
4. Given case studies or situations select the method which would be best in students opinion and give reasons.

Skills

Communication
Participation
Valuing
Critical thinking

Variations or Extensions:

1. Compare energy efficiency of various brands and models of washers, dryers, irons, water heaters.
2. Clean similarly soiled items by each method and compare amount of time and work involved and appearance of finished item.
3. Selection of clothing items which would cut down on amount of energy used for maintenance.
4. Comparison of cleanliness and energy costs of clothing washed at different water temperatures or in different products.
5. Compare appearance and energy costs of drying clothing at various settings.

Concepts

Life styles and values affect one's choice of clothing care methods.

The costs of doing laundry include many indirect and less obvious factors which need to be considered in choosing a method.

Resources: Teacher and students past experiences.

Washers, dryers, irons, water at various temperatures, etc.

Teacher-made worksheet

Figures on energy use of various appliances

Soiled items

Case Studies

Title: Passive and Active Solar Energy Use

Objective: The student will be able to state the difference between passive and active solar energy use and will correctly identify examples on a post-test.

Activity:

1. Brainstorming
   A. How do people currently use solar energy? (often without thinking of it as such.)
   B. How do people misuse or work against solar energy?

2. Teacher presentation of different type of active and passive uses of solar energy using teacher-made transparencies or slide set or a combination.

3. Have students each write for more information on this subject.

Variations or Extensions:

1. Have an outside speaker (either solar-energy expert or someone who can discuss how landscaping affects solar energy.)

2. Have students suggest ways in which they could implement use of solar energy in their homes.

3. Pre- and post-tests.

Resources

Teacher and students past experience and observations

Teacher-made transparencies or slide set.

Bibliograph of sources of more information.

Solar Heating
PO Box 1607
Rockville, Maryland 20850

Grade Level

10 - 12th grade housing class

Skills

Communication
Participation

Concepts

Passive and Active Solar Energy Use

Title: Where You Are Put - Protects Energy

Objective: Identify factors that affect conservation of energy of house placement on a site. Students will identify factors related to house/site placement that influence energy use. They will construct models illustrating points made.

Grade Level

Upper High school
Adult

Activity:

1. Teacher or other resource person outline concepts.
2. Students take notes.
3. Look at homes in area and discuss site placement.
4. Using sand in dishpan, styrofoam cone trees, plastic flower trees, small models of houses from boxes etc. (as available) have student groups develop a lot, mounding sand, etc.
5. Have groups explain site characteristics and why placement of house choice and planting, fences, etc. made.
6. May have groups judge each other on thought used in consideration of factors identifies from speaker/ lecture.

Skills

Gain information
Communication
Participation
Critical thinking
Problem solving
Evaluation

Variations or Extensions:

1. Simplify by teacher made model and have students judge/discuss.
2. Use fans or fireplace bellows as wind source.

Resources:

Architect

Local contractor who builds with site in mind - if available

Materials at school and/or home

Government Publications

Solar Heating
PO Box 1607
Rockville, Maryland 20850

Concepts

Climate
Winds
Exposure
Slope of the surface
Vegetation and landscaping

Title: So.....What? (Solar Energy Introduction)

Objective: Students define solar energy as a useable energy source.

Activity: Have students do as many of the following activities as time allows without explaining the purpose first.

1. Prepare two boxes, one line with foil and one line with black paper. Put both boxes in the window and place a small room thermometer in each. Record temperatures of each for each minute in a five minute period.

2. (Teacher get ready ahead: mark an X on the floor in a sunny spot and in a shady spot) (indoors or outdoors)

3. Make (sun - Don't call it that) tea - give them recipe instructions only -

4. Record differences observed in radiometer when in sunlight or darkness.

5. Record changes observed when cell exposed to sunlight, artifical light or darkness.

Then have class discuss what was a common factor/force in each of the activities. Generalize that the sun's power is what caused each of the results.

Variations or Extensions:

1. May have groups or individuals do each and report to entire group.

2. May have students make up own experiments that use solar energy.

Resources: The Sun!

Home Economics department materials

Science department materials

Recipe files

Solar Heating
PO Box 1607
Rockville, Maryland 20850

Grade Level

Junior High or older

Skills

Gaining Information
Participation
Communication

Concepts

The sun does a number of things when used as a source of energy.

Title: Possibilities of Passive Solar Home Heating

Objective: Students will identify 5 different types of residential passive solar heating.

Activity:

1. Discuss differences between active solar home heating and passive solar heating.
2. Teacher present illustrations of passive solar heating.
   a. Direct gain (South windows)
   b. Thermal storage wall (- window units, window shutters, drum wall)
   c. Thermal storage roof
   d. Sunspace (greenhouse)
   e. Convective loop
3. Research U.S. energy pie - (11% residential) used for space heating.
4. Compute savings of energy if half is solar.
   Compute saving of dollars if half is solar.
   Compute savings of energy if 40% is solar

Variations or Extensions:

1. Survey homes in area (or own) which use direct gain or are situated to adapt to solar heating by one of above types.
2. Research possible costs of above types and compute pay off over 5 to 10 years.

Resources:

Passive Solar Heating - pamphlet - U.S. Department of of Energy, Office of Conservation

Fact Sheet #7 - Solar Heating and Cooling - ERDA, Technical Information Center, PO Box 62, Oak Ridge Tennessee 37830

Passive Design Ideas for the Energy Conscious Architect - National Solar Heating and Cooling Information Center, PO Box 1607, Rockville, Maryland 20850, August '78. (pp. 40 through 48 especially)

Solar Energy - U.S. DOE

"Solar Energy" - Energy Research and Development Administration, Office of Public Affairs, Washington, DC 20545

Films/Slides/Videotapes - National Solar Heating and Cooling Information Center, PO Box 1607, Rockville, Maryland 20850

Grade Level

10 - 12
Adult Ed. (after basic energy and solar background)

Skills

Gaining information
Computing
Critical thinking
Communicating
Research

Concepts

Useability of solar heat
Types of solar heating available

Title: Use of Solar Energy in New Developments.

Objective: Students will observe how a developer plots a new construction area and will determine how such a site could be adapted for use of passive solar heating.

1. Students write out questions to ask the developer (ahead) which can be organized for his presentation. Questions should include some on solar energy usage.
2. Invite developer to class with plans, etc., used in making development.
3. Discuss which lots would lend self to best use of solar energy.
4. Discuss how other lots could be made more adaptable to solar energy.

Variations or Extensions:

1. Field trip to development site.
2. Follow-up reports on homes built in new development and usage of passive solar energy.

Resources: Developer (land)

Builder

Lumberman

Realtor

Solar Heating
PO Box 1607
Rockville, Maryland 20850

Grade Level

11 - 12th

Skills

Observation
Knowledge of what active and passive solar energy are.

Concepts

Learn how developments (housing) are planned and conceived.
Adaptation of sites (lots) to use of solar energy.

Title: A Mini Drum Wall

Objective: The student will construct and demonstrate use of a simple solar collector.

Activity:

1. Choose 1
   a. Presentation of background information to students of the various types of solar collectors.
   b. Students will research various types of solar collectors.
2. Collect 6 clean no. 10 aluminum cans and paint them with a dull black paint or cover with black construction paper.
3. Fill each can 3/4 to 7/8 full of water.
4. Stack cans in a pyramid in a south exposure window.
5. Record temperature at beginning and end of a sunny day and again the next morning.
6. Calculate the number of BTU's released from the water in that span of time.

Variations or Extensions:

1. Repeat activity adding a pyramid of water-filled shiny cans and compare temperature, number of BTU's released.
2. List uses for water heated in this way and compare feasibility of doing so with traditional methods.

Resources: School lunch room - cans

Science laboratory

Science teacher

Grade Level

7 - 9

Skills

Gaining information
Participation
Problem solving

Concepts

Harnessing of passive solar energy

Title: Under the Shade of the Old Maple Tree

Objective: The student will be able to describe and plan landscaping suitable for a solar design home.

Activity:

1. Field trip to a local solar design home without landscaping (or slide presentation, if more convenient).
2. Discussion by local nurseryman of types of plantings, wind protection and tree placement.
3. Students individually plan landscaping for the home.
4. Conference judging by students and nurseryman of individual plans.

Variations or Extensions:

1. Plan landscaping for one's own home which would allow most adventageous use of sun.
2. Draw sight plantings (bird's eye view) for a small local residential addition or development area.
3. Plan the use of fences to dimish cooling from air currents.

Resources: Nurseryman

Solar Heating
PO Box 1607
Rockville, Maryland 20850

Grade Level

Senior High

Skills

Gain information
Participation
Problem solving

Concepts

Planned landscaping aids in efficient solar heating.
Choice of plantings affect effectiveness of solar heating and cooling.

Title: The House of 2001

Objective: The students will design an energy efficient house of the future based on the energy situation of today.

Activity: They will each design a home for the future taking into consideration the energy supply. Floor plan drawn on graph paper. Sketch of outside view.

Variations or Extensions:

1. Could limit the amount of floor space to 1000 sq. ft.
2. Could construct miniature models for display.

Resources:

Utility Company

Architect

Home Design text book

Sample blueprints

Grade Level

High School (11-12)

Skills

Planning and Designing
Problem solving
Critical thinking
Valuing

Concepts

Changing living styles
Possible limited living space in the future.

Title: Alternatives to the "Box"

Objective: The students will be able to identify and explain typical and atypical styles of housing related to energy conservation and list ways styling effects conservation.

Grade Level

High School

Activity:

1. Students will brainstorm for ideas of housing styles that conserve energy.
2. Divide into groups to present a panel on information gained on specific style followed by Q and A. period. Present visual aids if possible.

Variations or Extensions:

1. Comparison of energy usage of a traditionally styled home to that of the various "unconventional" homes.
2. Research ways that will save energy if you're building a conventional style house.

Skills

Researching
Discussion
Participation

Resources: Library references and resources

People in the area with unusual styles of energy efficient housing.

Report on Energy Saving Model House in Cedar Falls, or similar model home in own locality.

Contractor

Concepts

The rectangle is not the only style of housing; nor the most efficient.
Geodesic dome
Underground (caves)
Solar homes
Electric homes

Title: Energy Fair

Objective: The students will plan and develop a collection of materials and information to be presented to parents and other members of the community.

Grade Level

any level

Activity: Set up display of energy information to be available to the public some evening or weekend.

Examples:
- Demonstrations
- Experiments they could actually do
- Student projects and posters
- Displays
- Slides or filmstrip if available

Could use Household Energy Game of give the "Energy Quotient" quiz at the beginning and the end to see if there is improvement.

Skills

Planning
Organization
Communication
Participation

Variations or Extensions: Could be done in cooperation with science department.

Resources: Students projects

Experiments

Household Energy Game

Sea Grant College Program
1800 University Avenue
Madison, Wisconsin 53706

Free materials for public.

Concepts

Awareness
Public knowledge comes before acceptance.
There is an energy shortage.

Title: Is This House Energy Efficient?

Objective: Students will analyze floor plans and elevations for energy efficiency.

Activity:

1. Class evaluate a couple floor plans for energy efficiency measures and discuss.

2. Each student analyze a newspaper, magazine or other type floor plan and its elevation for energy efficiency and make suggestions for improvements which would make the plan more energy efficient.

Variations or Extensions: Analyze own home for energy efficiency and ways which efficiency might be improved (cost efficient).

Resources: Class notes and discussion

Energy booklets and pamphlets

Utilities personnel

Builder or architect

Grade Level

High School

Skills

Observation
Reading
Background in passive solar energy

Concepts

To learn what makes a house energy efficient

Title: Catching the Rays

Objective: Student will identify efficient use of Solar Energy by visiting homes.

Activity:

1. Students will participate in discussion on how we use Solar Energy in our daily lives. (i.e. drying clothes, making tea, cutting fuel bills, etc.)
2. Students will discuss more efficient ways to use it in our homes.
3. Students will visit and evaluate several homes for use of solar energy. (i.e. proper exposure, - windows, overhangs, landscaping, placement on lot, floor and wall color, protection - draperies, roof color)
4. Students will complete questionaires on homes.

Variations or Extensions: Students could evaluate their own home and make practical suggestions to improve use of solar energy in their home.

Resources: Homes in community

Other energy activities

Grade Level

7 - 12

Skills

Gaining information
Communication
Observation
Problem solving

Concepts

Evaluate homes
Practical suggestions for improvement.

Title: "Is It Fair?"

Objective: The student will decide whether solar energy user should be charged the same utility rates as other users.

Grade Level

9 - 12

Activity:

A. A panel will discuss the question "Should solar energy users be charged a different utility rate?"

Members of Panel

1. Person who owns a solar energy house.
2. Representative from utility company.
3. Conventional utility user.
4. Energy conservation authority.

Some of the following ideas may be brought out:

1. Using solar energy saves fossil fuels.
2. People using solar energy will need to use the utility backup on cloudy days.
3. Utility companies will have to build bigger generators to meet greater needs.
4. Regular customers pay a higher rate through the year for these bigger generators. Should the solar energy users be charged a higher rate?
5. We need to encourage people to use solar energy so should we charge them?

Skills

Gaining information
Participation
Valuing
Problem solving
Critical thinking

B. The panel will field questions from students.

C. The students will reach individual conclusions.

After discussion the class will reach a consensus decision and write an article for the school newspaper reporting their findings

Concepts

Solar energy saves fossil
There are many far-reaching effects when people change to alternate energy sources.

Variations or Extensions: Have the students ask their parents' opinions.

Resources: Community members

Information on solar energy

Title: Checking Efficiency of Older Appliances

Objective: Students will make a list of conditions making older appliances inefficient.

Poor seals
Sagging insulation
Frayed cords
Defective thermostats

Grade Level

11 - 12

Activity:

1. Attach test meter to functioning older appliances in Home Economics Department to check Kwh - compare rating with comparable new appliance. (chart)
2. Allow students to take test meter home and test one of their own older appliances. Compare with ratings of new appliances on chart.
3. Class discuss life cycle cost of appliance and determine which of these appliances are working in a good fair or poor efficiency level.
4. Decide if over all use and cost of operation would indicate budgeting to replace or repair the appliance soon.

Skills

Math
Use of tester

Variations or Extensions: Families aware of inefficient equipment - enact repair or replacement.

Concepts

Conservation: world resource (energy)

Conservation: family resources of cash

Resources: Chart on energy ratings of appliances

Formula: ___ watts x ___ minutes x $\frac{1}{60,000}$ = Kilowatt hour

Association of Home Appliance Manufacturers
20 N Wacker Drive
Chicago, Illinois 60606

Utility Company

Title: Memory Pillow for Mom (Xmas or Mother's Day)

Objective: Students will construct an item using recycled resources.

Grade Level

7 - 12

Activity:

1. Students will bring scraps of garments they have worn. (Similar weight and washable)
2. They will design a "quilt top" pillow top - piece it and add backing.
3. Use it to cover:
   existing pillow needing freshening up
   stuff it with fiberfill
   Better - stuff with shredded nylon hose and pantyhose.
4. Calculate cost.

Skills

Sewing
Ingenuity

Variations or Extensions:

1. List alternative uses for recycled items.
2. Compare cost (both in money and energy) of disgarding serviceable items.

Resources: Books with quilt block pictures

A pillow already made from Instructor's scraps

Concepts

Full meaning of a gift with "thought"
Items have more than a single use

Title: What's New? Survey of New Technology in Energy

Objective: The student will identify some technology used in an energy related product. The student will interpret the practical use of the item.

Activity: The student by using ads and store visits will either bring examples or advertisements of products illustrating new technology such as insulators for watt outlets, the new caulking that conserves energy, water heaters, etc.

Variations or Extensions: Display of articles for school and community.

Incorporate products in classroom if possible - or in their own home.

Resources: Magazines, Ads

Local contractors

Hardware stores

Library

Grade Level

9 - 12

Skills

Research
Communicates
Gain Information

Concepts

New technology and new products are essential aid in conserving energy

Title: You Can Fight City Hall

Objective: The student will interpret local ordinances as they relate to energy. The student will value trade-off necessary in public sector.

Grade Level

10 - 12

Activity:

1. The students will gather information and zoning and building ordinances in their local communities and interpret their energy implication (solar space, etc.).

2. Then role play a zoning meeting for a developer or builder of solar home or underground housing.

Variations or Extensions:

1. Study codes in other areas

2. Write new building and zoning code for now that will be flexible enough for future technology.

Skills

Communication
Research
Valuing

Resources: Local government officials and publishers.

Concepts

New technology may require different rules

Title: Kids and Kilowatts

On the board in large letters as students enter:
KID KILOWATT KNOWHOW

Objective Students will identify energy needs of small children and relationship to energy usage.

Activity:

1. Brainstorm ways homes with small children have requirements for energy usage which vary from others. (Extra usage of water-laundry, etc., electric bottle warmer, room temperature warmer, nightlight.)
2. Ask for student experiences relating to energy use and small children. Perhaps from baby-sitting experiences.
3. Discuss alternative energy sources or practices for wastefulness discussed.

Variations or Extensions:

1. Could have young mother speak.
2. Do same activity for elderly, ill, bed-ridden, etc.

Resources: Experience

Statistics on appliance energy usage

Grade Level

Child Development 9th - 10th

Skills

Communication

Concepts

Energy Awareness

Title: Anyone You Know?

Objective: Students will demonstrate a typical in-home energy situation and its effects.

Activity:

1. 4 students are selected as characters for skit.
2. Set make-shift stage and props.
3. Give skit (see attached sheet)
4. After viewing skit, discuss similar situations and the havoc that might occur.

Variations or Extensions: Divide into groups and have each write own skit and perform.

Resources: Hand-out "Anyone You Know?"

Personal experiences

Grade Level

High School

Skills

Performing

Concepts

Energy effect awareness

SCRIPT

ANYONE YOU KNOW?

Characters: Family of 4, mother; father, son - Bill - 11 yr.; daughter - Sue - 15 yr.

Situation: Typical evening - summer 1979 - in Iowa or anywhere U.S.A.

Scene 1: Curtain opens. Mother returns from work. She is met at the door by son Bill.

Bill: Hey, Mom, guess what?

Mom: What? Where's Sue? Gee, it's hot in here. Turn on the air. Why is it so quiet in here?

Bill: Sue's upstairs talking to you know who?! Hey Mom, you're not listening - we don't have any juice.

Mom: There's some in the freezer, make it! Turn on the air! I've worked hard and it's hot in here.

Bill: Ah, Mom not O.J. (orange juice) - electric juice. No lights, no TV, no radio and no air conditioning.

Mom: Oh, No, well open windows and plug-in the fan.

Bill: Gee, Mom, you're not thinking - no juice - no air conditioning, no TV, no radio and no electric fan. Oh, and Dad nailed the windows shut so we won't waste energy, remember!

Sue: (enters - hair dripping wet) This is it. I have a date and my hair is a mess. I can't dry it! I can't curl it! I can't go like this.

Mom: Where are you going?

Sue: The drive-in, but not now.

Bill: No juice, no movie, no TV, no radio. I'm bored, there's nothing to do. Mom, I'm hungry, what's for supper?

Mom: Frozen pizza.

Bill: No juice, no TV, no radio, no pizza, no nothin'

Mom: Oh, no, well I'll fix grilled cheese.

Bill: No juice, no TV, no radio, no electric grill.....

Mom: (Getting very aggravated) OK, we'll barbecue hamburgers.

Bill: (Chuckling) No juice, no microwave to thaw frozen meat, no food, no TV.....

Mom: (In tears) Stop! Find something to do! (Mother decides to listen to radio - do laundry - mending etc. This is the last straw - she bursts into tears!)

This or a similar skit could go on and on with appropriate dialogue for any given situation.

Title: Heat Pumps

Objective: At the completion of this activity the student will be familiar with the operation of the heat pump system and will be able to make comparisons between it and other heating systems.

Grade Level

High School

Activities:

1. Students will compile a list on the chalk board of as many heating systems as they are familiar with.
2. Teacher will inform students about the basic principles of heat pump operation.
3. Students will visit a home or other building where the heat pump is used.....a dealer will be present to answer questions.
4. Students will compare the principles on which that system operated with the one in their own homes (A worksheet will be passed out with criterion for comparison).
5. Students will report back to class and summarize results.

Skills

Gaining Information
Participation
Critical thinking

Variations or Extensions: Compute costs of similar size homes using gas furnace, oil furnace, heat pump, etc.

Concepts

Heat pumps - a choice in home heating.

Resources: Guide to Energy Efficient Heat Pumps

Iowa Energy Policy Council, October 1977

Pamphlets available from dealers of various types of systems

Title: Food Energy

Objective: The student will compare energy costs of various cooking methods

Activity: The student will choose a cooking method from 3-4 methods. Each method will have a price. Students will have money to spend. Students will pick a meal, calculate cost of food, plan how it will be cooked, calculate costs and compare various methods.

Variations or Extensions: Continue project for several days and keep track of costs. The winner has the most money left.

Resources: Kwh costs for various appliances

Grade Level

Special Education

Skills

Preparing food
Valuing
Making decisions

Concepts

Energy can be conserved with careful selection of menues and cooking methods.

Title: Draft Dodger

Objective: Students will make an energy conserving device

Activity: Students will construct a draft dodger as a textile and clothing project. This would be a beginning sewing project which would follow other energy conservation learning experiences.

Variations or Extensions: This could also be an energy conservation project using recycled fabric.

Resources Teacher constructed model and directions

Grade Level

Junior High

Skills

Sewing

Concepts

Low cost
Energy conserver

List of Activities for Further Development

1. Home project - using masking tape seal windows on north side of house (do cost/benefit analysis for caulking, or do a comfort evaluation, or a draft check before and after taping, calculate benefits of caulking north side (or all) house windows.

2. Keep a heating budget (for home improvement unit) of own or "typical" residence (figures from utility company, AHAM, census bureau).

3. Calculate cost of a 5 (10, 15) minute shower with and without a water flow restrictor.

4. Plan field trips to:
   - Living History Museums
   - Solar instillations
     - (farms using solar hog houses, public buildings, private homes)
   - County museums to compare human vs. other energy sources
   - Amish community (or commune or other group that has non-energy intensive life style)
   - Geodesic dome home
   - Underground home
   - Construction sites
   - Utility Companies

5. Plan a project based on recycling.

6. Invite a resource person to discuss energy impact of:
   - government policy
   - individual behavior
   - new technology
   - life style
   - good old days vs. today
   - economics

7. Develop two or more different energy life styles and calculate and compare energy costs in an otherwise exact situation (house and family size, same heating system etc.)

8. Figure the increase of energy costs for any of the following
   - a new baby
   - moving into a larger home
   - increasing home temperature in winter
   - decreasing home temperature in summer
   - prolonged visit by elderly relative

9. Calculate cost of misusing a major appliance (i.e., oven or refrigerator) then figure savings realized by correct use.

10. Write to state or federal legislator about an energy issue effecting home owners.

11. Consider effects of advertising on energy consumption.

12. Discuss appliance needs vs. individual desires.

13. Survey store hours and compare them to typical shopping habits.

14. Consider how appliance placement in home effects energy use of those appliances.

15. Describe and compare recreational activities that are high and low energy users.

16. Prepare a pamphlet of slick tricks to reduce home energy use.

17. Do an energy audit using one or more of the following:
    own home
    a realtor shown new or older home for sale
    a vacation home
    a factory built home
    a mobil
    a school or other public building

18. Using the formula 1 Kwh = 1 lb of coal, figure the amount of coal needed to light a night game at school.

19. Have students wear all petroleum based clothing one day, natural fibers the next. Consider energy costs, laundry costs etc., and compare.

20. Design an energy efficient house for past, present and or future.

21. Calculate the energy costs of food items prepared at home and in restaurants include costs of transportation and packaging as well as food itself.

22. Survey the amount of throw away or excess packaging in a typical grocery order.

23. Create a file of plans and pictures of energy efficient homes.

24. Compare utility costs of a new and old home. Find out the cost of the energy to heat, cool and light your school church, or local businesses.

25. Research state and local energy legislation.

26. Discuss the effects of color, texture, fabric and light in relation to psychological warmth.

27. Develop a list of energy saving materials available to residents of your community.

28. Compare energy efficiency of new appliances with those in poor condition.

29. Develop a bulletin board file of energy materials. Slogans found in this packet can form a start.

30. Pin up a new "quotable quote" about energy somewhere in your classroom each day. Use student developed ideas when possible. If school issues morning or weekly memos perhaps these can be headed with an energy tip or quote.

31. Have students make word-jumbles using energy words or word search puzzles (graph paper works well). Exchange papers and solve.

32. Compare and contrast energy use of multiple and single family dwellings.

33. Investigate various methods of food production. Compare high and low energy techniques. Discuss alternative food sources (kelp, yeast products, soy food products, earth worms). Plan a foods lab using one of these.

34. Discuss site selection in relation to energy efficiency. Consider use of windbreaks, hillside or hilltop living, underground dwellings etc.

35. Invite a nurseryman, garden club member or agriculture extension agent to class to discuss effects of planting as a conservation measure.

36. Plan a forum or symposium with a sociology or economics class and consider psychological and sociological concerns that may arise as energy cost rise and traditional supplies become more limited.

37. Describe the way windows can be used to promote effectiveness of passive solar energy. Experiment with opening and closing drapes on shades at different times of the day. Research the availability of thermal drapes, shades, etc., their cost and reasons for use.

38. With information from your utility company determine low peak energy consumption times. Make a chart of activities that could be managed during this time frame. Discuss subsequent life style changes.

39. Assign students a token amount of money. Have a silent auction for basic appliances. Rank in order most commonly to least often purchased. Categorize small and major appliances. Discuss reasons for selection. Seperate wants and needs.

40. Winterize home economics department. Test for drafts using candle or tissue paper, select appropriate solution, carry out project.

41. Compare ways of preventing window heat loss. Consider asthetics, cost and effectiveness of various treatments.

42. Consider the role of various furniture styles in producing real or apparent warmth.

43. Conduct a debate on the topic "America-a use-it, abuse-it and throw-it-away society."

44. List 10 energy users in your home. Select 3 you cannot live without. Discuss and compare choices.

45. Experiment with incandescent and fluorescent lighting. Compare color rendition, bulb life, lumen output of various types. Use a light meter to check bulbs at school. Calculate heat production of various types of lighting, consider effects on heating, cooling!

46. Plan high lumen, low energy lighting scheme for given work or play areas in a home.

47. Have students survey lights in use at home at set hours. Consider whether lights were needed. Compute total wattage, figure lumen and heat output and calculate cost.

48. Adapt Iowa Home Economics teachers energy poll use it in class and discuss results.

49. Keep an energy conservation notebook.

50. Incorporate energy values clarification in mock marriage studies.

IOWA HOME ECONOMICS TEACHERS ENERGY POLL

Developed: Iowa Home Economics Energy Workshop
June, 1979
University of Northern Iowa
Funded: United States Department of Energy
Coordinator: Ella Jedlicka
Facilitators: Pat Mundy
Miriam Colvin

Energy Conservation affects us all. The decisions are difficult because most are directly related to our lives. What kinds of changes are you willing to make?

Would you be willing to:	willing	not willing
1. Walk to school or ride the bus rather than come by car?	_____	_____
2. Eat one cold lunch per week to conserve energy?	_____	_____
3. Give up your electric grooming appliances?	_____	_____
4. Wear clothing until it wears out instead of when it goes out of style?	_____	_____
5. Attend school in the summer and take a 3-month vacation in the winter?	_____	_____
6. Wear additional layers of clothing so that the heat can be turned down?	_____	_____
7. Cut out half of the current extra curricular activities?	_____	_____
8.* Reduce the amount of paper towels, bags, tissues, napkins, cups and disposables to save energy and curb pollution?	_____	_____
9. Reduce hours that grocery stores, shopping malls, movie theatres and public places are open?	_____	_____
10. Wear clothes more than one time before laundering them?	_____	_____
11. Cut your recreational driving by half?	_____	_____
12. Wash your hair half as many times as you do now?	_____	_____
13. Live in a multi-family dwelling rather than a single family home?	_____	_____
14. Have hot water available to you only 2 hours per day?	_____	_____
15. Boycott junk food to save energy?	_____	_____

*Source: Harris Poll, 1975

This poll was developed to be used as an introduction to the study of energy. Participants will present it to their classes, faculty members, or home economics colleagues.

Suggestions:

1. Give no information on questions prior to test. Allow participants to form their own opinion.

2. Exchange findings between schools.

3. Give the first day of school to all your classes and divide according to age groups, special interest groups, etc.

4. Give again at the end of your energy unit (semester) and compare results.

5. Discuss each question and decide what trade-offs you would be willing to make.

Energy Jingles, Slogans, Bulletin Board Ideas

1. Kill - A - Watt.....Turn off a light!

2. Even though it now is night
   the room need not be too bright.
   With just one lamp I can see
   the one-eyed moster, Mr. T.V.

3. Do your part - Be energy smart!

4. Take a stand for our land.

5. Save energy - do it in the dark.

6. Il-lumen-ate efficiently.

7. Reduce the waste (waist)
   Avoid junk food.

8. Save a lb./coal a day
   Keep high energy bills away!

9. Do it to it! Scissors cutting thru words energy usage.

10. Knock, knock.
    Who's there?
    Saver.
    Saver-who?
    Savor your energy.

11. Get Ship Shape with Short Showers.

12. Small sign in car --- Is this trip necessary??

13. If you're not part of the solution
    You're part of the problem ---
    Save Energy

14. Pollution Solution --- show energy conservation methods.